SANITARY SEWER COLLECTION SYSTEM INSPECTION

Inspector name: Eddy Bouzeid Inspector BG#: 34175
Inspector name: _____ Inspector BG#: _____
Inspector name: _____ Inspector BG#: _____
Permit #: TN0066800 Inspection Date: 5-9-2017
System Name: Somerville Lagoon
City: Bartlett Address: 6400 Stage Road, Bartlett, TN 38134
System Representative: Matt Crenshaw Position: Division Manager,
Phone number 901-385-5586 E-mail address mcrenshaw@cityofbartlett.org
System Representative: Don Ervin Position: Field Supervisor
Phone number 901-385-5586 E-mail address dervin@cityofbartlett.org
Certified Operator: Matt Crenshaw Grade: 2
Phone number 901-385-5586 E-mail address mcrenshaw@cityofbartlett.org

PART A

System Description (previous 12 months unless otherwise specified)

1. Service Area *(of collection system)*: 23.4 sq. mi.
2. Population *(last census or city survey)*: 58,200 people (2016 census)
3. Average Annual Precipitation: 55 inches
4. WWTF *Design Flow*: Organic 2.2 MGD Hydraulic 2.2 MGD
   Actual Flow (last 3 years): Average Flow *(last 3 years)* 1 MGD
   Lowest 7 days of flow 0.89 MGD
   Peak Wet Weather flow 4.4 MGD

5. Number of Employees dedicated to maintenance inspection and repair of the collection system: 7 people committed to the collection system
6. Number of Service Connections: Residential 20,199 Commercial 68
   Industrial none
7. Number of Satellite Communities *(systems with separately maintained collection systems)* 0
   Who is responsible for the satellite community systems? *(by contract/agreement ?)* NA

8. Is the sewer system combined? ☐Yes ☒No _____percent combined
9. Is the facility responsible for laterals? ☒Yes ☐No

Describe any limitations. (see attachment) Bartlett is responsible for the 6 " lateral from the main to where the property owner connects.

System Inventory

10. Number of Access Structures: Manholes (brick) _____
    + Manhole (concrete) 7374
11. Number of Pump Stations *(obtain a list if possible)*: 24
12. Number of Inverted Siphons: 1

WATER/WASTEWATER
LIFT STATION LOCATIONS

LIFT STATION NAME		LIFT STATION ADDRESS	NO. OF PUMPS	HP	AMPS	VOLTS
Barret's Chapel Elem. Sch.		10278 Godwin Rd	2	15	44	217
Bartlett Country		7708 Memphis Arlington Rd	2	7.5	22.6	214
Billy Maher		5965 Old Brownsville Rd	2	40	49	488
Bolton		7327 Brunswick Rd	2	30	84	212
Broadway		4120 Broadway Rd	2	2.5	9	245
Brunswick		5341 Brunswick Rd.	2	30	81	213
Buckhead		8614 Hwy 70	2	10	26.5	480
Davies Plantation		8891 Davies Plantation	2	7.5	22.6	215
Garner		2854 Bartlett Rd	2	2	12.5	246
Hollywood		4385 Germantown Rd	2	2.5	10.8	247
Hunters Walk		4650 Germantown Rd	2	10	5	248
Hwy 70		6658 Hwy 70	2	5	14.2	208
Mary Oaks		3736 Memphis Arlington Rd	2	3	74	245
Raner Creek		6314 Old Brownsville Rd	3	25	18	495
Raner Creek Sludge Press		6314 Old Brownsville Rd	2	15	33.6	495
Rockyford		6967 Old Brownsville Rd	2	7.5	19.2	246
Shadowlawn		7805 Old Brownsville Rd	3	25	40	230
Society		4520 Society Rd	2	5	13.5	460
St. Philip		3994 St. Philip	2	25	33.6	491
Sycamore Manor		5930 Sycamore Manor Cv	2	3	74	244
The Valley		8915 Old Brownsville Rd	2	20	49.6	246
Wolfchase (A)		5215 Sawyer Lake	2	15	10	497
Wolfchase (B)		5215 Sawyer Lake	2	15	40	215
Yale Road		7442 Yale Rd	2	3	74	244

13. Number of Relief Valves: Air _____ Vacuum _____ Air/Vacuum 10

Collection System Information *(Please approximate if necessary) Do not include satellite systems*

14. Length of Sewer Collection System 336 (total miles)

Pipe Materials:					
Vitrified Clay Pipe	x		Polyvinyl Chloride (PVC)	x
Ductile	x		Iron /Cast Iron	x
Brick			Concrete	x
HDPE:	x		Other:	

Pump Stations

Facility Name	*Age*	*# pumps*	*pump ages (yrs)*	*Design HQ*	*HP*
(see attachment)					

A Separate list may be submitted

Preventative Maintenance

15. Number of dedicated staff for Preventative maintenance 15
16. Total length inspected in the last 3 years. 208,000 feet (40 miles)
17. Inspection and Cleaning Activities *(last 3 years - check all that are applicable)*

☒CCTV	☒ Hydraulic Jet	☒Chemical Root Control
☒Visual Manhole Inspection	☐ Rod Machines	☒Chemical/Biological
☒Smoke Testing	☐Hand Rodding	Grease Control
☒Dyed Water Flooding	☐Bucket Machines	

Emergency Preparedness

18. Describe the procedure for responding to a concern regarding an SSO. - e.g. emergency phone numbers or city website, on-call staff, who responds to the event, etc.

During work hours, all sanitary sewer complaints go to Hot Line 901-385-5586. Public Works will dispatch a collection system tech. After hours, the tech on-call responds to the event. Emergency Preparedness was described in the SORP. A copy of the SORP was available for review.

19. Describe the procedures to limit / mitigate the SSO? Lift stations are inspected weekly and technicians conduct routine manhole inspections.

Procedures and Training

20. Is there a SORP? ☒Yes ☐No
21. Are staff provided training on the SORP? ☒Yes ☐No

22. How often is training updated? Annually
23. When was the SORP last updated? March 2017
24. Has city developed a program for maintenance and repair of the collection system *(i.e. CMOM)*? ☒Yes ☐No
25. Does the city have a sewer use ordinance? ☒Yes ☐No
    (a) Is there a limitation on fats, oils, and grease (FOG)? ☒Yes ☐No
    (b) Is there a prohibition against direct stormwater discharges? ☒Yes ☐No
    (c) Does it restrict other illegal discharges? ☒Yes ☐No

Part B – File Review and Interview
System Performance *(last 3 yrs)*
26. Are there any problematic areas of the city for overflows? Why?
Bartlett has concerns of the way new sewer lines are installed in new subdivisions. Bartlett has identified those areas and were placed on routine inspenctions.

27. Is the City under an Order with Collection System requirements? ☐Yes ☒No
28. Comments:

29. Is the City under a Moratorium other than self-imposed? ☐Yes ☒No
30. Comments:

31. Does the City have any areas where they have experienced greater than 5 overflows during the past 12-month period? ☐Yes ☒No
    a. If yes, has the City instituted a self-imposed moratorium? ☐Yes ☒No NA
32. If the City is under a moratorium, how are they keeping track of connections? NA

33. How many overflows has the City reported during the last 3 years? 5 SSOs from the collection system .
34. Is each overflow adequately documented? ☒Yes ☐No
35. Is the information consistent with previously reported data? ☒Yes ☐No
36. Comments:

37. Are the number of overflows increasing or decreasing? Decreasing
38. Comments:

Emergency Preparedness

39. Is there evidence that the procedures described for responding to a concern regarding an SSO is actively used? Yes
40. Comments: _____

41. Is there evidence that the procedures described for limiting or mitigating an SSO is actively used?
42. Comments: Yes. Degreaser are routinely used at lift stations and manholes are placed on routine inspections.

43. Do overflow records include the following information? *(check all that apply) (obtain a copy of the form) NA*

☒Type of event (wet- or dry-weather SSO)
☒Name of staff reporting event
☒Date and time reported to DWR (website or phone)
☒DWR staff contacted (or via website, or e-mail)
☒Event start date and time
☒Event end date and time
☒Location of SSO (GPS or address)
☒Structure (manhole or lift station ID)
☒Did overflow reach waters of the state?
☒Name of affected receiving water(s)
Stream monitoring conducted & documented
Impact to fish & aquatic life
☒Cause(s) of event
☒How the overflow was stopped
☒Remediation / mitigation efforts
☒Estimated flow & volume of discharge
Backup occurred into homes / businesses
Volume contained or recovered
Public notice, signs or advisories
Sensitive areas potentially impacted (parks, schools, campgrounds, etc.
Downstream water intakes notified

44. Are there means to limit public access to affected areas? ☒Yes ☐No
45. Comments: When an SSO occurs, public access is restricted until mitigation is completed.

Procedures and Training

46. If a SORP is in place
    a. Is training properly addressed? Yes
    b. Is there evidence of proper implementation? ☒Yes ☐No

Comments:

47. If a CMOM is in place NA
    a. How is adherence to the CMOM ensured? _____
    b. Is there evidence of proper implementation? ☐Yes ☐No

Comments: NA

Does the City have a permit on file? ☒Yes ☐No
Has the City properly maintained records for the past 3 years? ☒Yes ☐No
48. Does the city have a map of the collection system (paper or GIS)? ☒Yes ☐No Last Updated: GIS, whole system mapped, pipe sizes, manholes and lift stations.
Does the map include ☒pipe sizes ☐pipe material ☒pipe lengths
☐manhole depths ☐manhole material ☐manhole IDs ☐location of past SSOs?
Comments: Bartlett was enhancing its GIS mapping to include manhole depths, manhole material, pipe material and manhole IDs.

49. Does the city have current operating and maintenance manuals? ☒Yes ☐No Last Updated:
Comments: Lift stations manufacturers' manuals.

50. Is there documentation for yearly calibration of all flow meters? ☒Yes ☐No at the lagoon
51. If the city has a sewer use ordinance
(a) Does the city adequately enforce established restrictions on fats, oils, and grease (FOG)? ☒Yes ☐No
(b) Has the city had any difficulty in prohibiting Stormwater discharges into sewers under the ordinance? ☐Yes ☒No
(c) Has the city had any difficulties with illegal discharges? ☐Yes ☒No
(d) Can the city readily produce the ordinance? ☒Yes ☐No
Comments:

52. Discuss recent / current sewer extensions and/or construction permits:
Several construction developments were beginning to start (sewer extension):

- Kirby Whitten north of Egypt Central
- Commercial development around industrial park.

53. Other comments:

System Bartlett
Month: May
System Contact: Matt Crenshaw

City of Bartlett
Collection System Overflow Report
Year 2016

County: Shelby
Phone # (901)385-5570

START DATE	END DATE	LOCATION	START TIME	END TIME	QUANITY	ACTION TAKEN
5-6-16	5-6-16	5820 Stage Rd.	10:00am	11:30am	1000gal	washed main and unstopped and disinfected
5-15-16	5-15-16	5930 Sycamor Manor L/S	1:00am.	2:00am	1500gal	reset breaker and repaired pump disinfected yard
5-23-16	5-23-16	5681 Brunners Place	8:00pm	9:45pm	500gal	washed + unstopped main + disinfected
5-30-16	5-30-16	2454 Boysenberry	2:00pm.	3:00pm	300gal	unstopped blockage at manhole and disinfected
3-11-16	3-11-16	5508 Ackerman Cov	10:00am	11:00am	500gal	jetted main and disinfected.

Signed: Matt Crenshaw

LIFT STATION CHECKLIST

KEY: N/A = Not Applicable; G = Good; F = Fair; P = Poor; X = Not Working

Permit # MO-____________
Date____________

1. Name of station: 6658 Hwy 70 Hwy 70 pump station
1a. Constructed under DNR CP: Yes___ No ✓___
1b. Construction Date (year): rebuilt fully spring 2016
2. Location: 6658 Hwy 70
3. Design capacity: 500 gpm **Actual flow:**___________
4. # of pumps 2 **Motor HP, volts, phase** 5
4a. Type of pumps: submersible __; centrifugal __; air lift ✓**; other**________
4b. Pump hours at time of inspection: 17258 pump1 10771 pump2
5. Does this station have a drywell? Yes__ No ✓
5a Means of access: ladder ___; elevator ___; Other ✓
6. Are screening ____or grinding ____ devices used? N/A
6a. (If yes, attach appropriate checklist.)
7. Is area fenced, padlocked, and posted with warning signs? Yes ✓ **No__**
8. How often is station checked? Daily___ Other weekly
9. What is the frequency of scheduled maintenance? as needed upon weekly inspections
10. Are valves exercised? Yes ✓ **No___ Frequency**___________
11. Are inspection and maintenance records maintained? Yes ✓ **No___**
12. Flow metered? Yes__ No X**; Type ___________ Recorded? Y__ N__**
13. Does each pump have an hour meter? Yes ✓ **No___**
14. Is there a pressure gauge on the pump discharge? Yes___ No ✓
15. Is there an alarm system? Yes ✓ **No___**
15a. (If yes, type: radio telemetry ___; phone dialer ✓**; local audible/visual** ✓
16. Alternate power source available? Yes ✓ **No___**
16a. If yes, type: station. generator ✓**; port. generator ___; separate utility__**
17 Does this station have a by-pass? Y__ N ✓ **(where to?____________)**
18 Does this station have an emergency holding basin? Yes___ No ✓
19. Does this station have a portable pump connection? Yes___ No ✓
19a. If so, is pump available? Yes___ No___; pump operable? Yes___ No ✓
20. Does this facility have adequate spare parts inventory? Yes ✓ **No___**

* 6 big distribution have SCADA

21. Are there adequate safety provisions such as guard rails, catch nets, or anti-falling devices? Yes___ No_✓_
22. Is there an approved Confined Space Entry Program? Yes_✓_ No___
23 Are electrical main-disconnects outside of wetwell / drywell? Yes_✓_ No__
24. Are shut off valves easily accessible? Yes_✓_ No___
25. Does the access road meet Chapter 8 requirements? Yes__ No__ N A
26. Outside appearance (groundskeeping, painting, etc.) G_✓_, F__, P__
27. Inside housekeeping: G_✓_, F__, P__
28. Ventilation system: N/A__, G_✓_, F__, P__, X__
29. Heater: N/A_✓_, G__, F__, P__, X__
30. Dehumidifier: N/A_✓_, G__, F__, P__, X__
31. Air Conditioner: N/A_✓_, G__, F__, P__, X__
32. Control Panel: N/A__, G_✓_, F__, P__, X__
33. Sump Pump: N/A_✓_, G__, F__, P__, X__
34. Pumps: G_✓_, F__, P__, X__
35. Air Compressors: #__ N/A_✓_, G__, F__, P__, X__
36. Floats: #___ N/A_✓_ G__, F__, P__, X__
37. Ultra Sonic Sensor: N/A_✓_, G__, F__, P__, X__
38. Is lighting adequate? Yes_✓_ No___
39. Is there a water supply source available for cleaning? Yes___ No_X_ no [illegible]
40. Are chemicals routinely added at this station? Yes___ No_✓_
40a. If so, list chemical and purpose: ______________________
41. What are the most common problems the Operator has had with the lift station?
routine weekly maintenance
____

Comments:
____

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DO NOT ENTER ANY CONFINED SPACE FOR ANY REASON!
Cameras and flashlights can go in, but staff are prohibited from entering manholes.

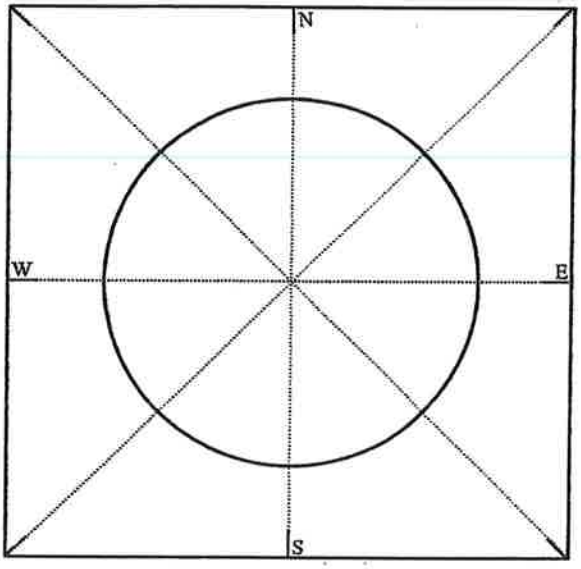
Missouri Department of Natural Resources
Sanitary Sewer Overflow Inspection

Manhole Visual Inspection Checklist

The primary purpose of this checklist is to evaluate a community's sanitary sewer system to determine if proper operation and maintenance is being performed and whether there are sanitary sewer overflows (SSOs) that are occurring (whether reported or not). During an SSO inspection, the inspector should attempt to observe at least five manholes per community. The goal should be to observe a sample of the different types and ages of manholes. For example, can you observe one or more manholes that previously overflowed, one of the oldest manholes, one of the deepest, one near a receiving stream, one at a location low in the collection-system watershed, one brick, one concrete, etc. Do not forget to take a picture of the cover and the inside.

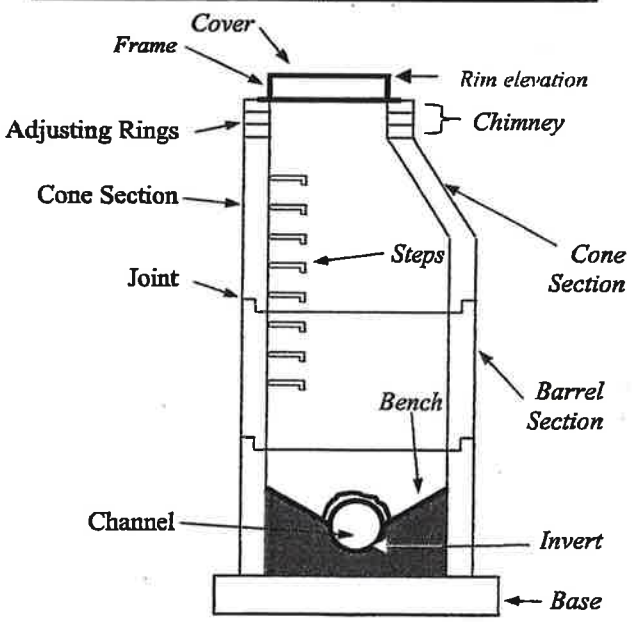
Inspection Date: 5-9-17 Weather: Sunny
Manhole No.: _____
Location: 6487 Colay
Sewershed: _____
GPS coor.: _____
Downstream manhole no.: _____
Distance to next manhole: 80 ft
Depth to channel invert: 12 ft.
Material: Brick, Precast, Block Masonry,
Cast-in-Place Concrete, Coated, Other:
Cover diameter: 24
Approx. dist. to stream: 1/2 mile
Surrounding area: Pavement, Lawn, Field,
Wooded, Gravel, Other:

Draw the inlet/outlet pipes, etc.



Pipe Data

	Diameter	Material	Depth from rim	Lined?	Condition of seal?
Outlet	8"	Clay	11.5 ft	—	Good
Inlet 1	8"	Clay	11.5 ft	—	Good
Inlet 2					
Inlet 3					
Inlet 4					



Is there any evidence of a recent overflow? ND
Utility lines running through the manhole? ND
Is the cover below ground level? ND
Subject to stream flooding? Unlikely, occasionally, frequent.
Subject to ponding? Unlikely, occasionally, frequent.
Depth (inches) _____ Area (sq.ft.) _____
Holes in manhole cover? 4
Are solids accumulating?
on bench ___, on steps ___, or in channel ___ ND
Cover misaligned? ND

Is there staining indicating I&I? ND Is there Grease or solids buildup? ND
Odor? ND Rooting? ND Flow observation (slow/backed up)? normal
Discuss the structural integrity: Good Other Miscellaneous Problems:
(e.g, bricks falling in, cracks/pitting in concrete, corrosion, joint seals)

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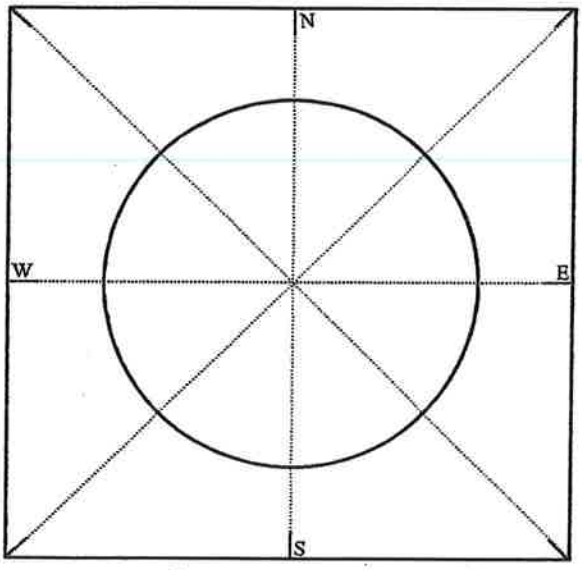
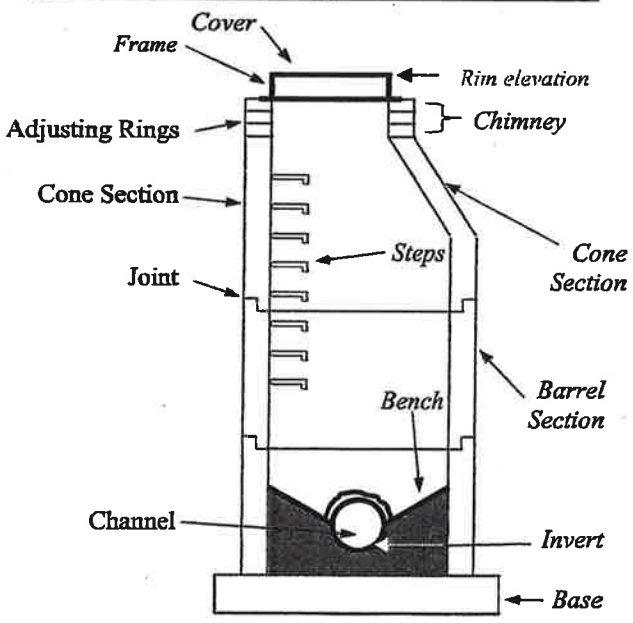
Inspection Date: 5-9-17 Weather: sunny
Manhole No.: _____
Location: 3520 Curb Stone Cove
Sewershed: _____
GPS coor.: _____
Downstream manhole no.: _____
Distance to next manhole: 60 ft.
Depth to channel invert: 10 ft
Material: Brick, Precast, Block Masonry,
Cast-in-Place Concrete, Coated, Other:
Cover diameter: 24
Approx. dist. to stream: _____
Surrounding area: Pavement, Lawn, Field,
Wooded, Gravel, Other:

Draw the inlet/outlet pipes, etc.



Pipe Data

	Diameter	Material	Depth from rim	Lined?	Condition of seal?
Outlet	10"	PVC	9.5	—	Good
Inlet 1	6"	PVC	9.5	—	Good
Inlet 2	6"	PVC	9.5	—	Good
Inlet 3					
Inlet 4					



Is there any evidence of a recent overflow? ND
Utility lines running through the manhole? ND
Is the cover below ground level? ND
Subject to stream flooding? Unlikely, occasionally, frequent.
Subject to ponding? Unlikely, occasionally, frequent.
Depth (inches) _____ Area (sq.ft.) _____
Holes in manhole cover? 4
Are solids accumulating?
on bench ___, on steps ___, or in channel ___ ND
Cover misaligned? ND

Is there staining indicating I&I? ND Is there Grease or solids buildup? ND
Odor? ND Rooting? ND Flow observation (slow/backed up)? normal
Discuss the structural integrity: good Other Miscellaneous Problems:
(e.g, bricks falling in, cracks/pitting in concrete, corrosion, joint seals)

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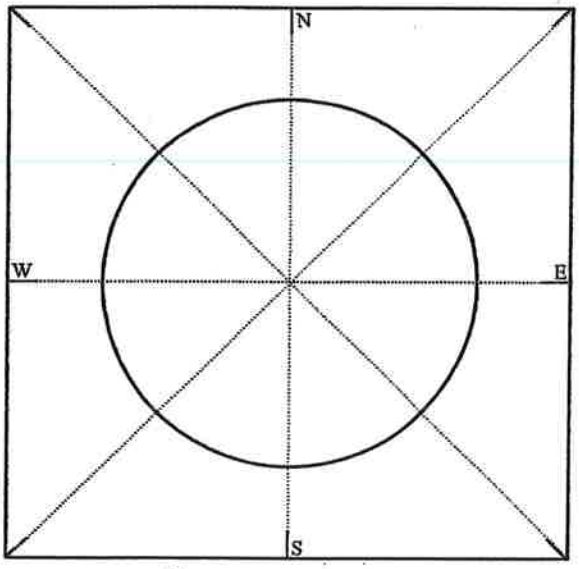
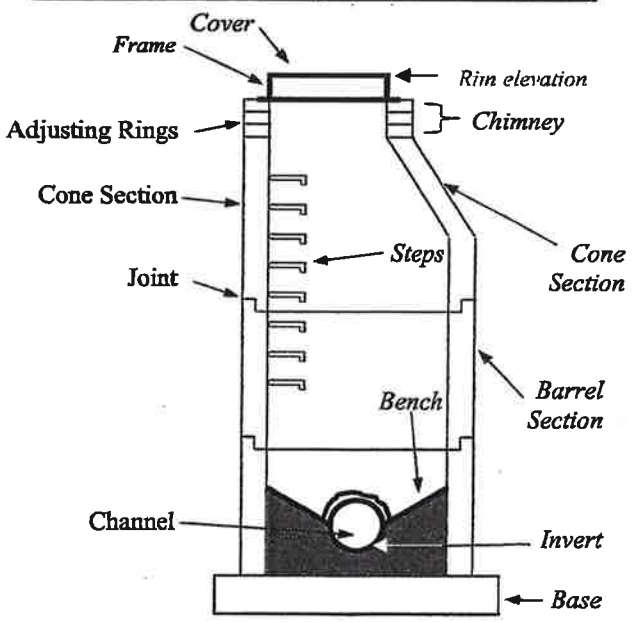
Inspection Date: 5-9-17 Weather: Sunny
Manhole No.: _____
Location: 3588 Charlene
Sewershed: _____
GPS coor.: _____
Downstream manhole no.: _____
Distance to next manhole: 70 ft.
Depth to channel invert: 8'
Material: (Brick), (Precast), Block Masonry, Cast-in-Place Concrete, Coated, Other:
Cover diameter: 24"
Approx. dist. to stream: 1/4 mile
Surrounding area: Pavement, Lawn, Field, Wooded, Gravel, Other:

Draw the inlet/outlet pipes, etc.



Pipe Data

	Diameter	Material	Depth from rim	Lined?	Condition of seal?
Outlet	24	Concrete	7.5	ND	good
Inlet 1	24	"	7.5	—	good
Inlet 2	24	"	7.5	—	good
Inlet 3				—	
Inlet 4					



Is there any evidence of a recent overflow? ND
Utility lines running through the manhole? ND
Is the cover below ground level? ND
Subject to stream flooding? (Unlikely), occasionally, frequent.
Subject to ponding? (Unlikely), occasionally, frequent.
Depth (inches) _____ Area (sq.ft.) _____
Holes in manhole cover? 4
Are solids accumulating? ND
on bench ___, on steps ___, or in channel ___
Cover misaligned? ND

Is there staining indicating I&I? ND Is there Grease or solids buildup? ND
Odor? ND Rooting? ND Flow observation (slow/backed up)? normal
Discuss the structural integrity: good. Other Miscellaneous Problems:
(e.g, bricks falling in, cracks/pitting in concrete, corrosion, joint seals)